

L-PRX:DRP2 binds dystroglycan and laminin-211

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Introduction

Reactome is open-source, open access, manually curated and peer-reviewed pathway database. Pathway annotations are authored by expert biologists, in collaboration with Reactome editorial staff and cross-referenced to many bioinformatics databases. A system of evidence tracking ensures that all assertions are backed up by the primary literature. Reactome is used by clinicians, geneticists, genomics researchers, and molecular biologists to interpret the results of high-throughput experimental studies, by bioinformaticians seeking to develop novel algorithms for mining knowledge from genomic studies, and by systems biologists building predictive models of normal and disease variant pathways.

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Literature references

- Fabregat, A., Sidiropoulos, K., Viteri, G., Forner, O., Marin-Garcia, P., Arnau, V. et al. (2017). Reactome pathway analysis: a high-performance in-memory approach. *BMC bioinformatics*, 18, 142. [↗](#)
- Sidiropoulos, K., Viteri, G., Sevilla, C., Jupe, S., Webber, M., Orlic-Milacic, M. et al. (2017). Reactome enhanced pathway visualization. *Bioinformatics*, 33, 3461-3467. [↗](#)
- Fabregat, A., Jupe, S., Matthews, L., Sidiropoulos, K., Gillespie, M., Garapati, P. et al. (2018). The Reactome Pathway Knowledgebase. *Nucleic Acids Res*, 46, D649-D655. [↗](#)
- Fabregat, A., Korninger, F., Viteri, G., Sidiropoulos, K., Marin-Garcia, P., Ping, P. et al. (2018). Reactome graph database: Efficient access to complex pathway data. *PLoS computational biology*, 14, e1005968. [↗](#)

Reactome database release: 88

This document contains 1 reaction ([see Table of Contents](#))

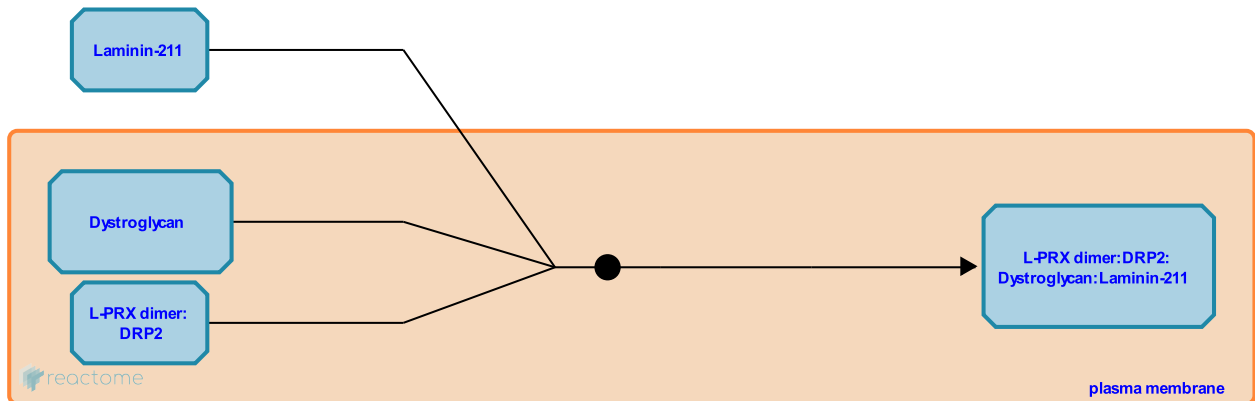
L-PRX:DRP2 binds dystroglycan and laminin-211 [↗](#)

Stable identifier: R-HSA-9619666

Type: binding

Compartments: plasma membrane

Inferred from: [alpha-dystroglycan binds laminin-211 \(Bos taurus\)](#), [L:Prx:Drp2 binds dystroglycan \(Mus musculus\)](#)



The DRP2:L-PRX complex interacts with dystroglycan in the plasma membrane as part of the dystrophin glycoprotein complex (DGC) (Sherman et al, 2001; Court et al 2009; Sherman et al, 2012). DGC complexes have structural and signaling roles and provide a connection between the abaxonal Schwann cell plasma membrane and the adjacent basal lamina through interaction with laminin complexes, including laminin-211 (Ervasti et al, 1993; Yamada et al, 1994; Yamada et al, 1996; Imamura et al, 2000; reviewed in Wrabetz and Feltri, 2001; Masaki and Matsumura, 2010).

Literature references

Wrabetz, L., Feltri, ML. (2001). Do Schwann cells stop, DR(o)P2, and roll?. *Neuron*, 30, 642-4. [↗](#)

Ervasti, JM., Campbell, KP. (1993). A role for the dystrophin-glycoprotein complex as a transmembrane linker between laminin and actin. *J. Cell Biol.*, 122, 809-23. [↗](#)

Ozawa, E., Noguchi, S., Araishi, K., Imamura, M. (2000). A sarcoglycan-dystroglycan complex anchors Dp116 and utrophin in the peripheral nervous system. *Hum. Mol. Genet.*, 9, 3091-100. [↗](#)

Gillespie, CS., Fabrizi, C., Brophy, PJ., Sherman, DL. (2001). Specific disruption of a schwann cell dystrophin-related protein complex in a demyelinating neuropathy. *Neuron*, 30, 677-87. [↗](#)

Matsumura, K., Kanazawa, I., Endo, T., Yamada, H., Fukuta-Ohi, H., Anderson, LV. et al. (1996). Characterization of dystroglycan-laminin interaction in peripheral nerve. *J. Neurochem.*, 66, 1518-24. [↗](#)

Editions

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